

Configuring the XCAPI with the Avaya IP Office 3.2

TE-SYSTEMS GmbH

1 Introduction

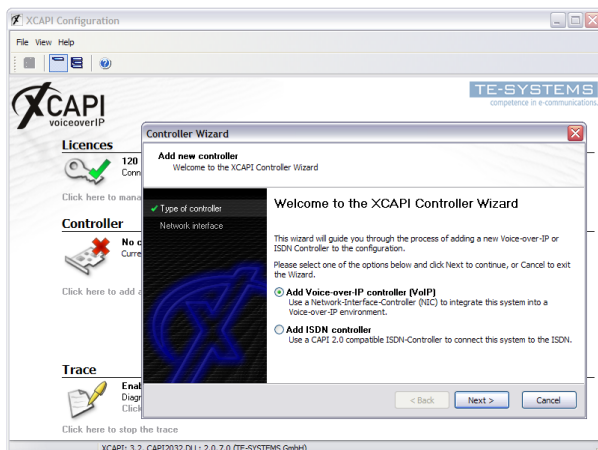
This document is intended to support you with the integration of the XCAPI (Version 3.2) into an existing environment of the Avaya IP Office. Though being based on version 3.2 of the Avaya IP Office and the Version 5.2 of the IP Office Manager it should be applicable to lower versions, given a few adjustments.

In the following sections we describe the essential steps of configuration to allow for optimal cooperation of both the XCAPI and the IP Office by using the H.323 protocol stack. At this point we suppose that the Avaya IP Office, the hardware the XCAPI is running on and both the XCAPI and your CAPI applications are already installed properly. For some extended information on installation procedures please refer to the respective manuals. A short installation manual for the XCAPI is available at the [XCAPI Website](#).

2 XCAPI Configuration

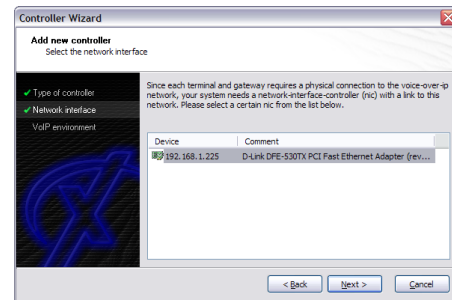
Please start up the XCAPI configuration tool to create a new controller assigned to the Avaya IP Office. If you've just installed the XCAPI and start the configuration tool for the first time, the *XCAPI Controller Wizard* will pop up automatically. This will also happen if there's no controller configured at all. To start up the *XCAPI Controller Wizard* on your own, just click the hyperlink labelled *Click here to add a controller* on the overview page of the XCAPI configuration.

On the first page of the Controller Wizard please select the *Add Voice-over-IP controller (VoIP)* option and continue with the NEXT button.



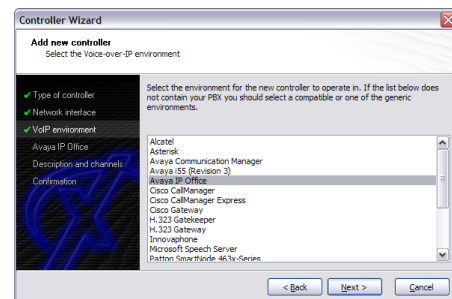
2.1 Network Interface

On this page of the XCAPI Controller Wizard you can select the network adapter you want to bind to the XCAPI controller.



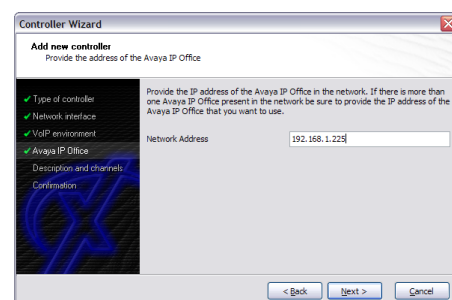
2.2 Voice-over-IP Environment

The next dialog of the configuration tool shows a list of some common Voice-over-IP environments. Selecting one of those will configure the XCAPI with a selection of near-optimal presets for the kind of environment you have, sparing you quite a lot of manual configuration. Please select the *Avaya IP Office* option here.



2.3 IP Address of the Avaya Gateway

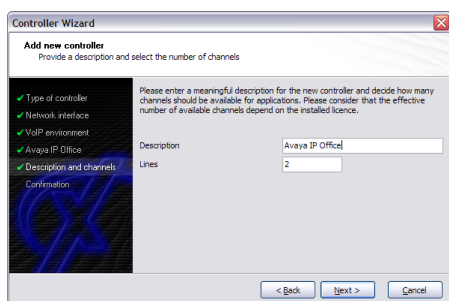
In the dialog *Network Address* please provide the IP address of your Avaya IP Office.



2.4 Description and Channels

That's about all information that has to be configured with the XCAPI. The next-to-final dialog of the Controller Wizard allows you to configure a meaningful description for the controller you're going to create. This isn't really used anywhere, so you can enter a text of your choice here.

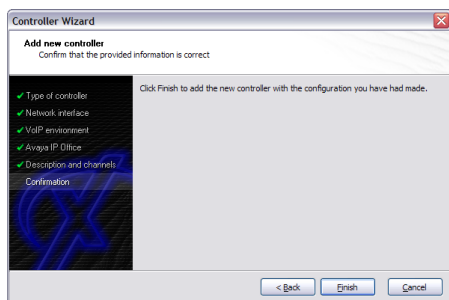
This dialog, however, also allows configuring the number of channels that the new controller will be able to provide. Please enter how many simultaneous connections the XCAPI should handle when communicating with the Avaya IP Office.



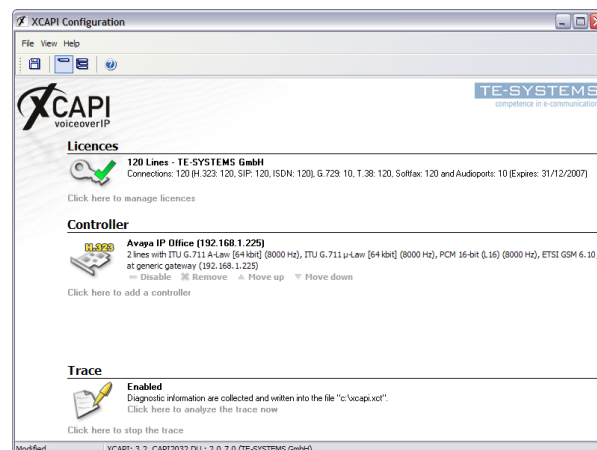
2.5 Confirmation

The final dialog of the Controller Wizard performs some checks on the configuration parameters you've made. If any errors are detected here, you can go back to the respective dialogs and correct the concerned settings.

If everything is correct please use the FINISH button to create the new XCAPI controller.



Now, the new added controller appears on the main page of the XCAPI configuration.

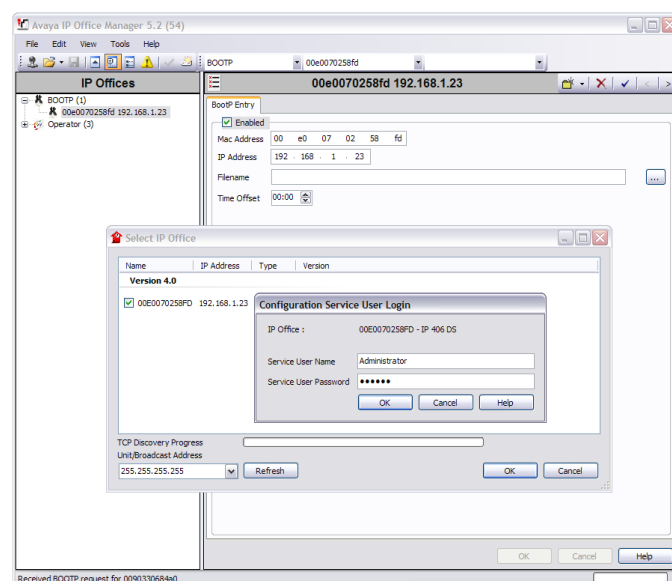


Finally, please save the changes you've made and exit the XCAPI configuration.

Hint: You need to restart the bound CAPI application for the changes to take effect.

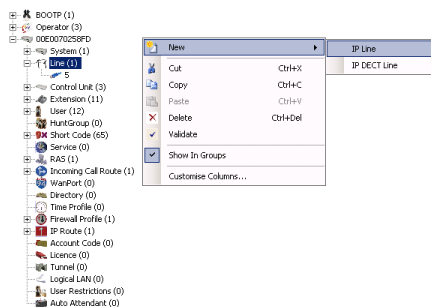
3 Configuring the Avaya IP Office

In order to establish the communication between the XCAPI and the Avaya IP Office using the H.323 protocol, you need to create the XCAPI as a new IP trunk within the Avaya IP Office configuration. First, please log in to IP Office Manager Administration interface with an administrative account.



3.1 IP Trunks

To add a new IP trunk you need to choose the *new* and *IP Line* context out of the *Line* menu.

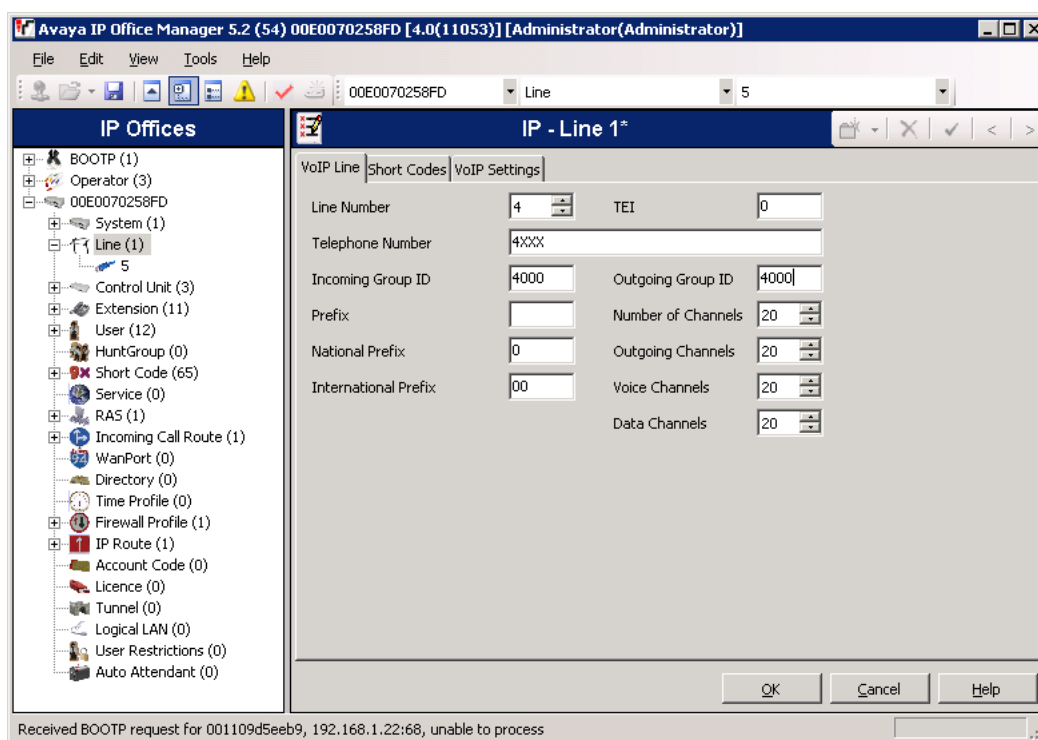


For this example we use the following parameters:

- The IP Line is used to configure the VoIP Gateway for IP Office. IP Line numbers provide a discriminator to other line groups and need to be unique. However, here we used the Line Number 4.
- The TEI (Terminal Equipment Identifier) is used to identify each Unit connected to a dedicated ISDN line. Here it's recommended to use the default value 0 for Point to Point and single Point to

Multi-Point lines. When using multiple devices sharing a Point to Multi-Point connection the TEI value should be set to 127.

- The value of the option *Telephone Number* only describes the IP Line. Here we used the value 4XXX as indication for the range of numbers considering to this IP Line.
- *Incoming Group ID* and *Outgoing Group ID* are used by *Short Codes* and *Incoming Call Routes* to indicate which line they use. Here we use the value 4000.
- The *Prefix*, *National Prefix* and *International Prefix* values we left by their defaults. Here you should set the values by your needs.
- For the *Number of Channels*, *Outgoing Channels*, *Voice Channels* and *Data Channels* parameters we use also the default values.



After finishing the *VoIP Line* entries, please continue with configuring the VoIP Settings. Please change to the *VoIP Settings* tab and make the following settings:

- Please enter the IP address of the remote Control Unit, i.e. the server running the XCAPi and the bound CAPI application, to the *Gateway IP Address* box.
- It's recommended to use the *G.711 ALAW 64K Compression Mode*. In the case of using Soft fax

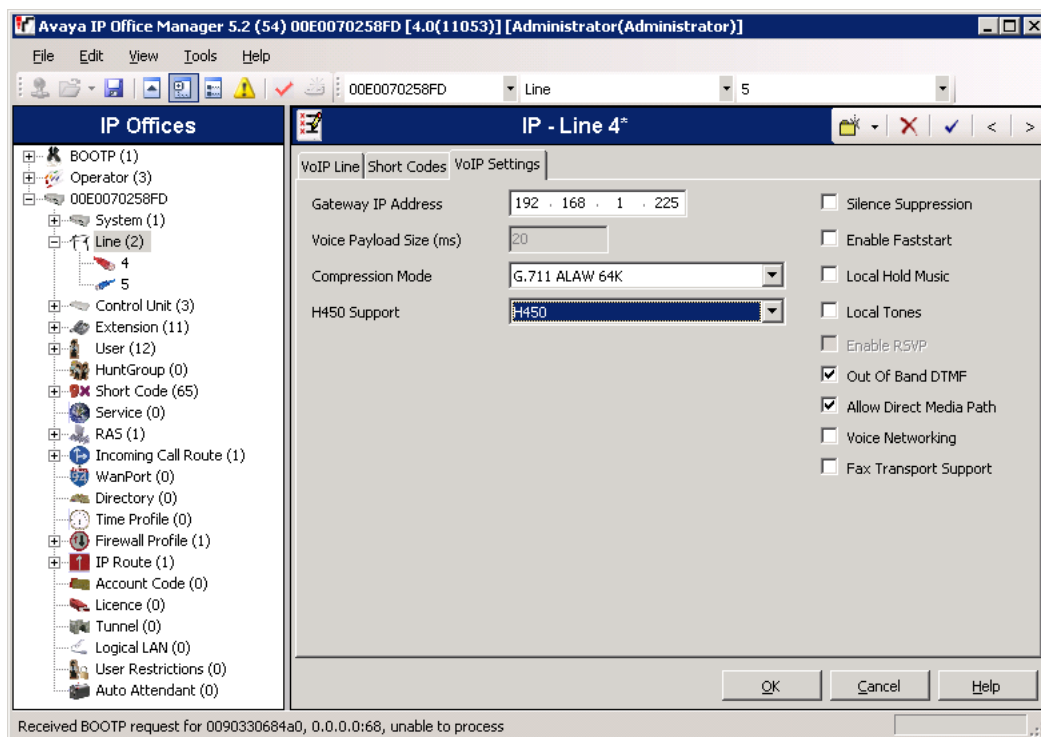
you should not leave this by the *Automatic* default value. High compression codes, such as G.723 or G.729 can not be used for fax transmission over voice channels. The selected codec needs to be supported by the XCAPi and other installed components.

The option *Voice Payload Size (ms)* will be set automatically to the selected Compression Mode and can't be changed by your own.

- The *H450* option selects the supplementary service signalling method for use across H.323 connections. Here you should use the recommended H450 value, especially when using more than one IP Office device. By using the QSIG protocol you might not have all supplementary services available.
- For this example we use also the default values

for *Silence Supression, Enable Faststart, Local Hold Music, Local Tones, Out Of Band DTMF, Allow Direct Media Path, Voice Networking* and *Fax Transport Support*.

By using a facsimile application you need to ensure a disabled *Fax Transport Support* option. This is a proprietary protocol and incompatible to the Soft fax method and Fax-over-IP T.38 protocol.

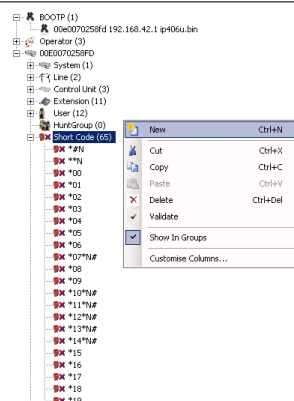


The new added IP Trunk will be shown beneath the *Line* configuration node by finishing your input with the OK button.

3.2 Short Codes

The Avaya IP Office gateway uses short codes to match the dialled number to an action. The dialled number or parts of it can be used as parameter for the feature.

Please change the view to the *Short Code* dialog and create a new short code using its context menu.



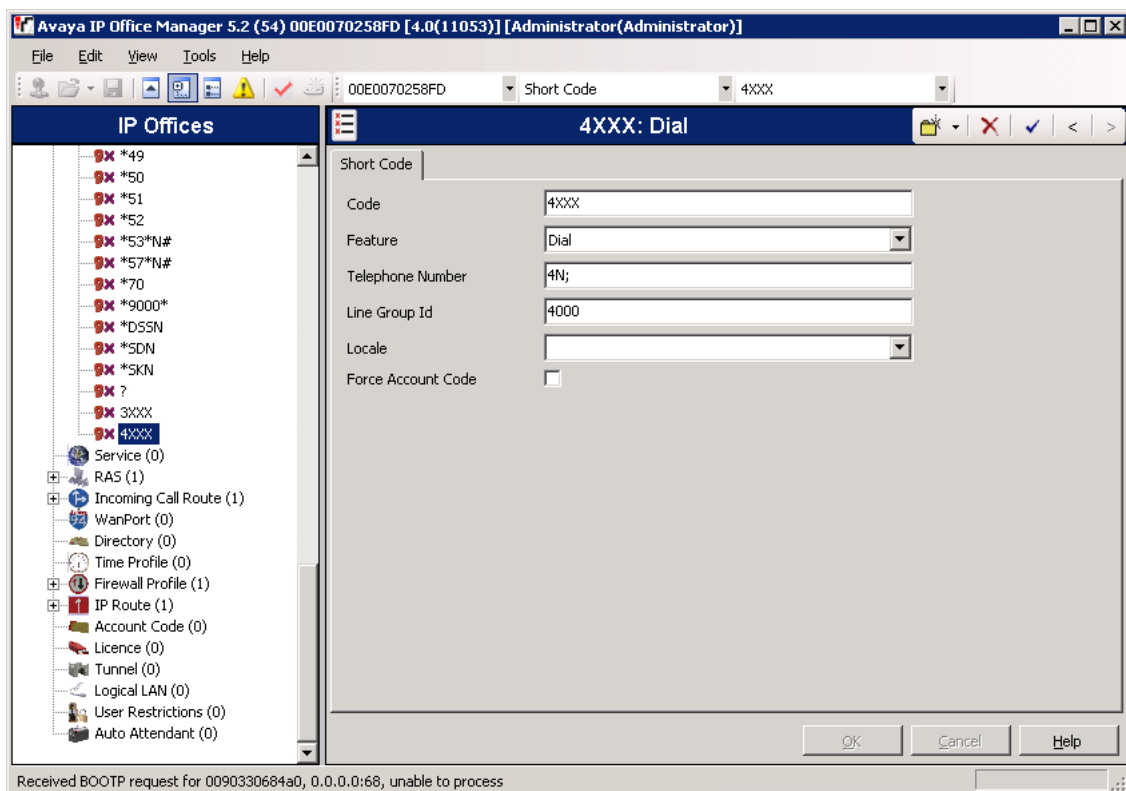
For this example we use the following settings:

- Using the value 4XXX for the *Code* option ensures a specific action to the range of dialled numbers between 4000 and 4999.
- Now we select the *Dial* feature to the therefore chosen range of dialled numbers.

- The attributes of the option *Telephone Number* specifies the parameters and dialled number of the short code feature. Here we use the value *4N;*. The first attribute *4* is used for the first number of the dialled number. The second attribute *N* is used in meaning of matching all wildcards of the *Code* parameter. The attribute *;* is used to instruct the system waiting for complete dialling numbers. This attribute is used and recommended for terminating short codes.

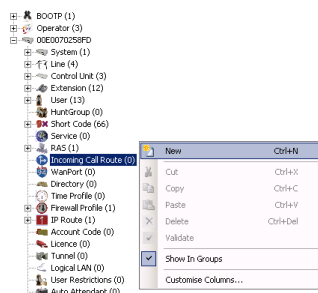
- The *Line Group ID* is used to enter the *Outgoing Group ID* assigned to the lines that should be used. Here we use the value *4000*.
- The option *Locale* is only used for voicemail and not used for this example.
- We also don't need to set the option *Force Account Code* and leave this disabled.

Now the configured *Short Code* can be confirmed by pressing the OK button.



3.3 Incoming Call Route

Incoming call routes are used to match received calls with a destination. Please change the view to this configuration node and add a new *Incoming Call Route*.



Here we use the following settings for our configuration:

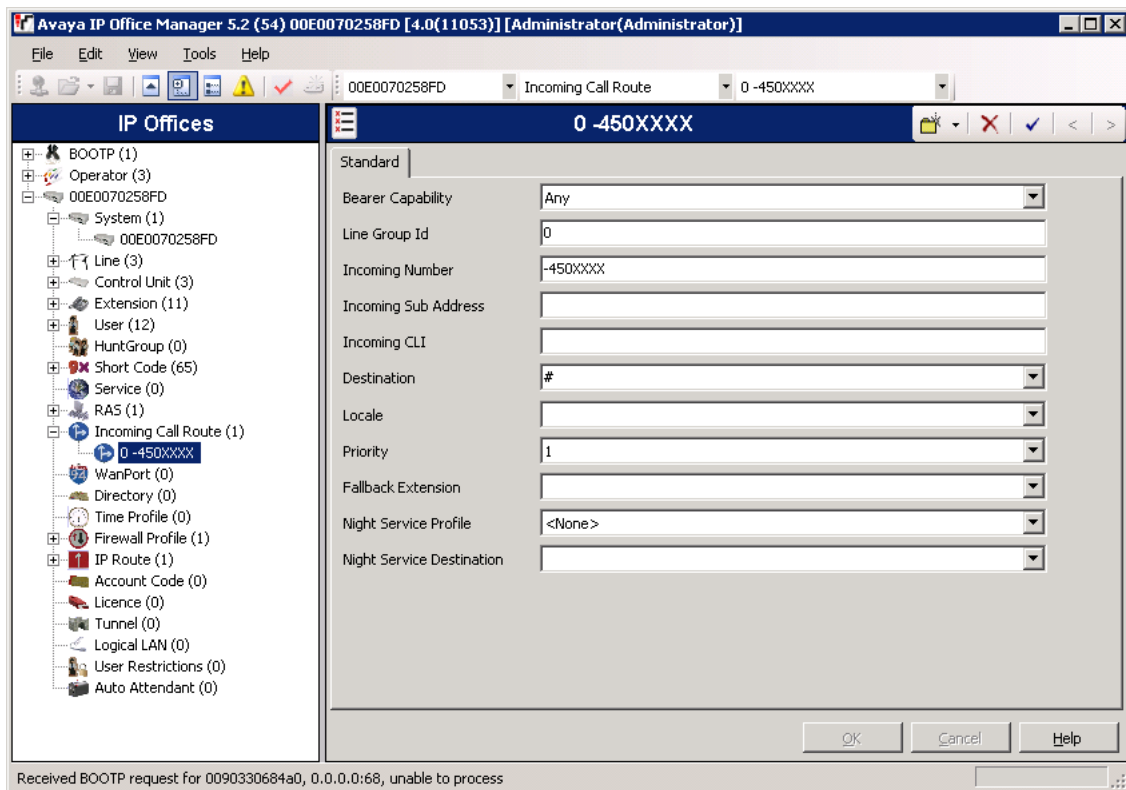
- *Bearer Capability* specifies the type of call selected from the list. Here we use the option *any*, which selects all kinds of Data, Speech, Audio 3K1, Data 56K, Data 64K, Data V110, Video capabilities.
- The *Line Group ID* option matches against the Incoming Line Group to which the trunk receiving the call belongs. This is set by default to *0*.
- *Incoming Number* matches the digits presented by the line provider. Here we use the value *-450XXXX*. Using the *-* attribute causing a left-to-right match. The value *450* represents the direct access of the Avaya gateway connected to the PSTN. Each wildcard *X* is used for any single digit.

All in all our short code values will only match when 7 digits, starting with *450* are received.

- *Incoming Sub Address* and *Incoming CLI* are left blank by default and match any sub address component sent with the incoming call.
- The option *Destination* selects the destination for the call from the list box. The # attribute matches all X wildcards of the *Incoming Number* field.

- For this example we leave the option *Locale*, *Priority*, *Fallback Extension*, *Night Service Profile* and *Night Service Destination* blank or by its default.

Now you can confirm your setting by pressing the OK button.



4 Fax Services

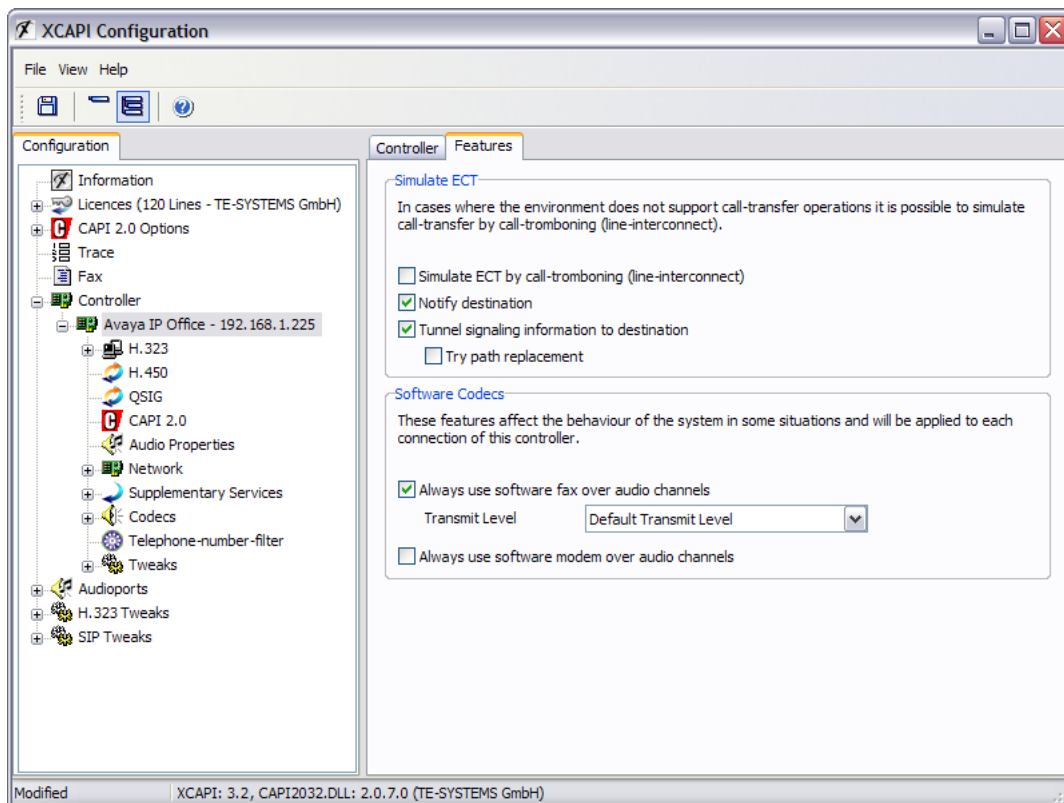
The Avaya IP Office gateway only offers a proprietary fax protocol. By using the XCAPi services it is also possible to use the Soft fax mode. The T.38 Fax-over-IP protocol is not yet supported by the Avaya Gateway.

4.1 Soft Fax

When using Soft fax, the XCAPi simulates an analogue Fax device by transmitting modulated Fax-

signals modem-like via audio-channels. Soft fax can not be used with high compression codecs as we already described in chapter *IP Trunks* on [page 2](#).

Please open the XCAPi configuration to review the Soft fax settings. Select the H.323 controller assigned to the Avaya IP Office. Open the tab labelled *Features* and simply enable the *Always use software fax over audio channels* option.



5 Supplementary Services

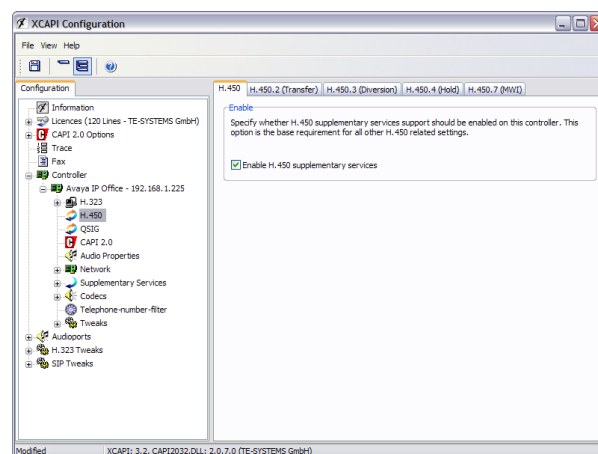
The H.323 protocol defines support for the so called supplementary services, such as Call Transfer or MWI (Message Waiting Indications), by the means of the H.450 or QSIG protocol family. Currently the XCAPi and IP Office gateway provide support for both protocols. It's recommended to use the H.450 stack, especially for interworking between multiple IP Office devices.

The XCAPi provides means for best approximating the effects of some supplementary services with the Avaya IP Office gateway. This might not be enabled by default; in this case it needs to be configured explicitly. However, we are now going to describe the configuration for a near optimal interoperability.

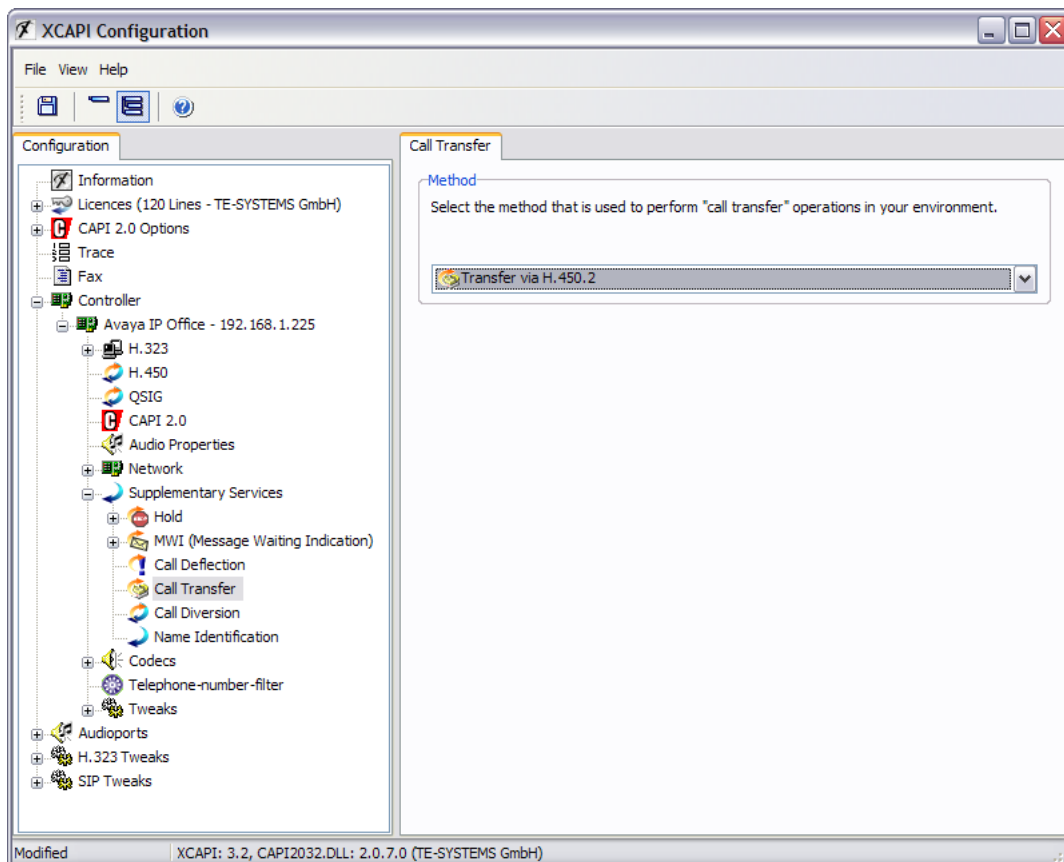
5.1 Call Transfer

Call Transfer is supported by H.450 Call Transfer supplementary service. Beside the *H.450* setting for the IP trunk, described in chapter *Line* on [page 2](#), you need to ensure the correct settings of the XCAPi controller.

To enable this, please open the XCAPi configuration utility and select your H.323 controller. Please change the view to the *H.450* configuration node and review the option *Enable H.450 supplementary services*.



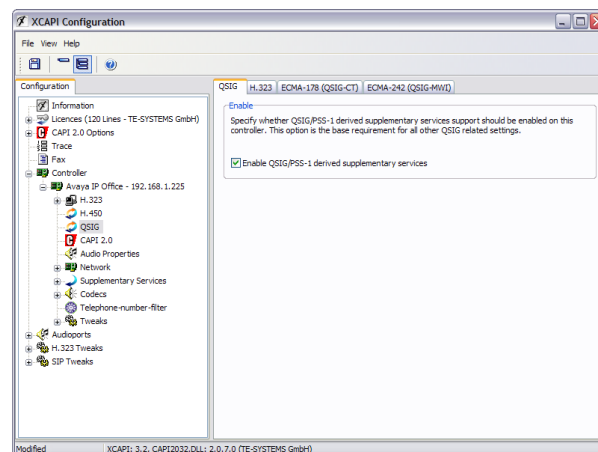
Then please change the view to the XCAPi *Supplementary Services, Call Transfer* configuration node and ensure an enabled *Transfer via H.450.2* option.



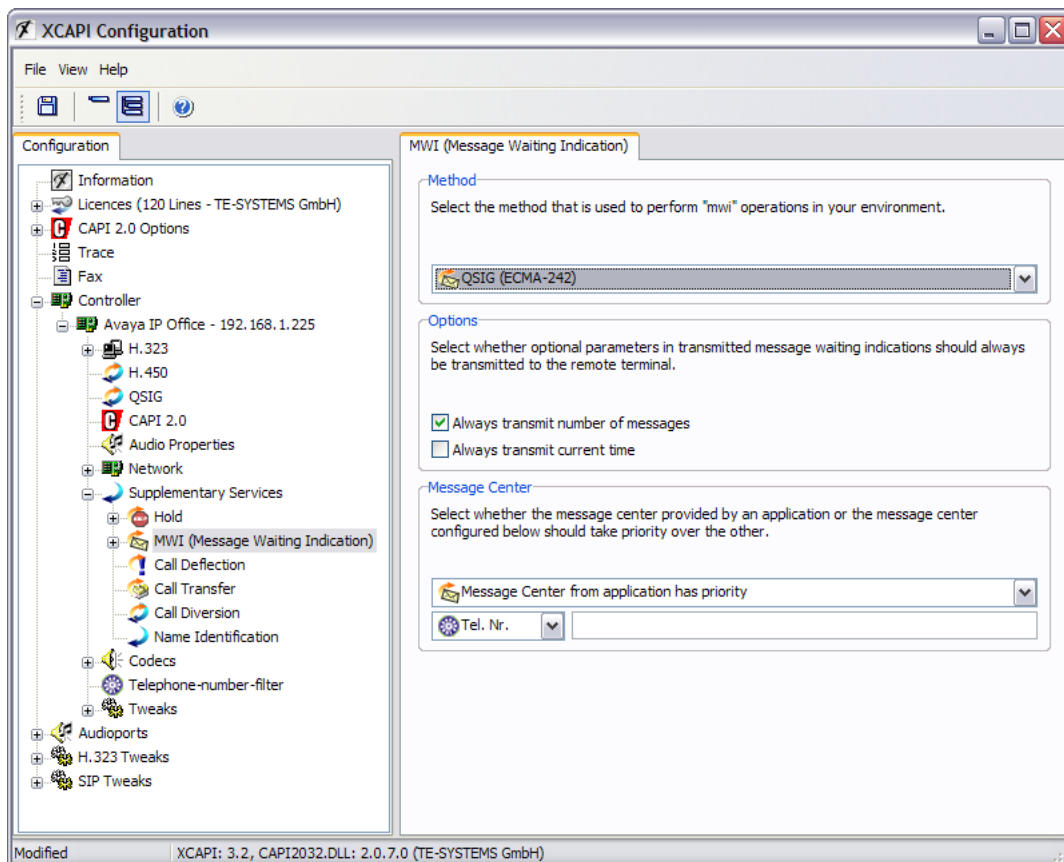
5.2 Message Waiting Indications

In H.323 networks, MWI (Message Waiting Indications) are transmitted via the H.450.7 or QSIG/PSS1 protocol. This is supported by both the XCAPI and the IP Office (Version 4.0) gateway. However, here we are going to describe the MWI configuration by using the QSIG protocol.

Please open the XCAPI configuration utility and select the H.323 controller. Please change the view to the QSIG configuration node where the *Enable QSIG/PSS1 derived supplementary services* must be enabled.



Then please change the view to the MWI configuration dialog beneath the XCAPI *Supplementary Services* node ensuring the selected QSIG (ECMA-242) method.



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